What Is Claimed Is:

1. An apparatus for feeding to an automated analyzer a bulk quantity of vessels, each having an elongated body with a first end and a second end, comprising:

a. a frame structure;

b. means supported by said frame structure for transporting said vessels along a path;

c. a sorting and orienting mechanism, mounted on said frame structure at a location adjacent to said path and intercepting said vessels transported, for ejecting said sorted vessels from said transporting means into a guide, and orienting said vessels, such that they are all headed by their first ends when exiting said guide;

d. an escape mechanism mounted to said frame and connected to said guide for receiving said sorted and oriented vessels and dispensing them one at a time; and

e. means for controlling and coordinating the movement of said transporting means, said sorting and orienting mechanism, and said escape mechanism.

2. The apparatus as defined in claim 1, wherein said frame structure comprises two upright side plates connected in a spaced-apart parallel relationship for supporting said transporting means.

3. The apparatus as defined in claim 1, further comprising a vessel hopper attached to said frame structure for receiving said bulk quantity of vessels and supplying them to said transporting means.

4. The apparatus as defined in claim 1, wherein said transporting means comprises an elevator chain moveable along said path for transporting said vessels to said location of said sorting and orienting mechanism.

5. The apparatus as defined in claim 4, wherein said transporting means further comprises a drive sprocket for driving said elevator chain to move along said path.

6. The apparatus as defined in claim 5, wherein said transporting means further comprises a drive motor for driving said drive sprocket.

7. The apparatus as defined in claim 5, wherein said transporting means further comprises an idle sprocket engaged with said elevator chain.

8. The apparatus as defined in claim 4, wherein said transporting means further comprises a multiplicity of scoopers carried by said elevator chain.

9. The apparatus as defined in claim 8, wherein each scooper is configured to transport said vessels in a horizontal orientation.

10. The apparatus as defined in claim 1, wherein said sorting and orienting mechanism comprises a first ram for engaging said first end of said vessels transported if said first ends of said vessels are facing said first ram, and ejecting such vessels one at a time from said transporting means into said guide.

11. The apparatus as defined in claim 10, further comprising means for maneuvering said vessels ejected by said first ram, such that their first ends enter said guide first.

12. The apparatus as defined in claim 10, wherein said sorting and orienting mechanism further comprises a second ram for engaging said second end of said vessels transported if said second ends of said vessels are facing said second ram, and ejecting such vessels one at a time from said transporting means into said guide with said first ends of such vessels enter said guide first.

13. The apparatus as defined in claim 12, wherein said sorting and orienting mechanism further comprises ram actuators for actuating said first and second rams, respectively.

14. The apparatus as defined in claim 1, wherein said escaping mechanism comprises an escapement actuator.

15. The apparatus as defined in claim 8, further comprising a vessel sensor mounted on said frame structure and electrically coupled to said controlling and coordinating means for controlling the movement of the scoopers and rams.

16. The apparatus as defined in claim 3, further comprising a hopper sensor mounted on said vessel hopper and electrically coupled to said controlling and coordinating means for detecting the amount of vessels remaining in said hopper.

17. The apparatus as defined in claim 3, further comprising a sprocket sensor mounted on said frame structure adjacent to said drive sprocket and electrically coupled to said controlling and coordinating means for detecting the correct stopping position of said drive sprocket.

18. An apparatus for feeding to an automated analyzer a bulk quantity of vessels each having an elongated body with a first end and a second end, comprising:

a. a frame structure having two upright side plates connected in a spaced-apart parallel relationship;

b. means supported by said frame structure for transporting said vessels along a path, including an elevator chain driven by a drive sprocket, and a multiplicity of scoopers carried by said elevator chain and each configured to transport said vessels in an horizontal orientation;

c. a vessel hopper attached to said frame structure for receiving said bulk quantity of vessels and supplying them to said scoopers carried by said elevator chain;

d. a sorting and orienting mechanism, mounted on said frame structure at a location adjacent to said path and intercepting said vessels carried by said scoopers;

e. said sorting and orienting mechanism, including a first ram for engaging said first end of said vessels carried by said scoopers if said first ends of said vessels are facing said first ram, and ejecting such vessels one at a time from said scoopers into a guide;

f. said sorting and orienting mechanism further including a second ram for engaging said second end of said vessels carried by said scoopers if said second ends of said vessels are facing said second ram, and ejecting such vessels one at a time from said scoopers into said guide;

g. an escape mechanism mounted to said frame and connected to said guide for receiving said sorted and oriented vessels and dispensing them one at a time; and

h. means for controlling and coordinating the movement of said transporting means, said sorting and orienting mechanism, and said escape mechanism.

19. The apparatus as defined in claim 18, wherein said transporting means further comprises a drive motor for driving said drive sprocket.

20. The apparatus as defined in claim 18, wherein said transporting means further comprises an idle sprocket engaged with said elevator chain.

21. The apparatus as defined in claim 18, wherein said sorting and orienting mechanism further comprises mean for maneuvering said vessels ejected by said first ram such that their first ends enter said guide first.

22. The apparatus as defined in claim 18, wherein said second ram ejects said such vessels, which have their second ends facing said second ram, from said scoopers into said guide with said first ends of such vessels enter said guide first.

23. The apparatus as defined in claim 18, wherein said sorting and orienting mechanism further comprises ram actuators for actuating said first and second rams, respectively.

24. The apparatus as defined in claim 18, wherein said escaping mechanism comprises an escapement actuator.

25. The apparatus as defined in claim 18, further comprising a vessel sensor mounted on said frame structure and electrically coupled to said controlling and coordinating means for controlling the movement of the scoopers and rams.

26. The apparatus as defined in claim 18, further comprising a hopper sensor mounted on said vessel hopper and electrically coupled to said controlling and coordinating means for detecting the amount of vessels remaining in said hopper.

27. The apparatus as defined in claim 18 further comprising a sprocket sensor mounted on said frame structure adjacent to said drive sprocket and electrically coupled to said controlling and coordinating means for detecting the correct stopping position of said drive sprocket.

28. An apparatus for feeding to an automated analyzer a bulk quantity of vessels, each having an elongated body with a first end and a second end, comprising:

a. a frame structure having two upright side plates connected in a spaced-apart parallel relationship;

b. means supported by said frame structure for transporting said vessels along a path, including an elevator chain driven by a drive sprocket, and a multiplicity of scoopers carried by said elevator chain and each configured to transport said vessels in an horizontal orientation;

c. a vessel hopper attached to said frame structure for receiving said bulk quantity of vessels and supplying them to said scoopers carried by said elevator chain;

d. a sorting and orienting mechanism, mounted on said frame structure at a location adjacent to said path and intercepting said vessels carried by said scoopers;

e. said sorting and orienting mechanism, including a first ram for engaging said first end of said vessels carried by said scoopers, if said first ends of said vessels are facing said first ram, and ejecting such vessels one at a time from said scoopers into a guide, and also including mean for

maneuvering said vessels ejected by said first ram, such that their first ends enter said guide first;

f. said sorting and orienting mechanism further including a second ram for engaging said second end of said vessels transported if said second ends of said vessels are facing said second ram, and ejecting such vessels one at a time from said transporting means into said guide with said first ends of such vessels enter said guide first;

g. an escape mechanism mounted to said frame and connected to said guide for receiving said sorted and oriented vessels and dispensing them one at a time; and

h. means for controlling and coordinating the movement of said transporting means, said sorting and orienting mechanism, and said escape mechanism.

29. The apparatus as defined in Claim 28, wherein said transporting means further comprises a drive motor for driving said drive sprocket.

30. The apparatus as defined in Claim 28, wherein said transporting means further comprises an idle sprocket engaged with said elevator chain.

31. The apparatus as defined in Claim 28, wherein said sorting and orienting mechanism further comprises ram actuators for actuating said first and second rams, respectively.

32. The apparatus as defined in Claim 28, wherein said escaping mechanism comprises an escapement actuator.

33. The apparatus as defined in Claim 28, further comprising a vessel sensor mounted on said frame structure and electrically coupled to said controlling and coordinating means for controlling the movement of the scoopers and rams.

34. The apparatus as defined in Claim 28, further comprising a hopper sensor mounted on said vessel hopper and electrically coupled to said controlling and coordinating means for detecting the amount of vessels remaining in said hopper.

35. The apparatus as defined in Claim 28, further comprising a sprocket sensor mounted on said frame structure adjacent to said drive sprocket and electrically coupled to said controlling and coordinating means for detecting the correct stopping position of said drive sprocket.